



P-ISSN: 2716-2656, E-ISSN: 2985-9638

JOURNAL MARINE INSIDE

VOLUME 8, ISSUE 1, JUNE 2026

Web: <https://ejournal.poltekpel-banten.ac.id/index.php/ejmi/>

Influence of port concession schemes on the performance of port business entities in Indonesia: A systematic literature review

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ABSTRACT

Port concession schemes have emerged as a primary policy instrument for the Indonesian government to accelerate infrastructure development, enhance operational efficiency, and stimulate private sector participation in the maritime sector. Following the enactment of Shipping Law No. 17 of 2008, Indonesia's port governance transitioned from a service port to a landlord port model, wherein Port Authorities act as regulators while Port Business Entities (Badan Usaha Pelabuhan/BUP) operate facilities via concession agreements. Despite the widespread adoption of these arrangements, their actual impact on port performance, investment realization, and service quality remains contested. This study employs a Systematic Literature Review (SLR) to evaluate the influence of concession schemes on BUP performance in Indonesia. Drawing on scientific journals, regulatory documents, and international publications, the analysis reveals that concessions generally foster infrastructure modernization, operational efficiency, and service competitiveness. However, significant hurdles persist, including regulatory ambiguities, disputes over concession durations, asset transfer complexities, tariff determinations, and institutional friction. Ultimately, the findings indicate that the success of port concessions extends beyond contractual terms, demanding robust governance, regulatory consistency, and performance-based monitoring. This paper concludes with strategic recommendations to refine concession policies, thereby securing the long-term competitiveness and sustainability of Indonesian ports.

Keywords: *Port concession, landlord port model, port performance, port governance, systematic literature review.*

ABSTRAK

Skema konsesi pelabuhan kini menjadi salah satu kebijakan andalan pemerintah Indonesia untuk mempercepat pembangunan infrastruktur, meningkatkan efisiensi operasional, dan menarik keterlibatan sektor swasta di industri maritim. Sejak disahkannya UU Pelayaran No. 17 Tahun 2008, sistem tata kelola pelabuhan kita beralih dari model service port ke landlord port. Dalam sistem ini, Otoritas Pelabuhan berperan sebagai regulator, sedangkan fasilitasnya dioperasikan oleh Badan Usaha Pelabuhan (BUP) lewat perjanjian konsesi. Meski skema ini sudah banyak diterapkan, efektivitasnya terhadap peningkatan kinerja pelabuhan, masuknya investasi, dan kualitas layanan masih sering diperdebatkan. Oleh karena itu, penelitian ini menggunakan metode Systematic Literature Review (SLR) untuk melihat sejauh mana pengaruh skema konsesi tersebut terhadap kinerja BUP di Indonesia. Berdasarkan telaah terhadap berbagai jurnal ilmiah, dokumen regulasi, dan publikasi internasional, terlihat bahwa pemberian konsesi secara umum membawa dampak positif. Infrastruktur pelabuhan menjadi lebih modern, operasional lebih efisien, dan layanannya makin berdaya saing.



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Namun, di lapangan masih terdapat sejumlah hambatan besar. Beberapa di antaranya adalah aturan yang masih ambigu, perdebatan soal masa berlaku konsesi, rumitnya proses serah terima aset, penetapan tarif, hingga masalah koordinasi antarlembaga. Temuan ini menegaskan bahwa kesuksesan konsesi pelabuhan tidak bisa hanya mengandalkan isi kontrak hitam di atas putih. Diperlukan tata kelola yang kuat, aturan yang konsisten, serta pengawasan yang benar-benar berbasis pada pencapaian kinerja. Sebagai penutup, kajian ini memberikan sejumlah rekomendasi strategis untuk memperbaiki kebijakan konsesi, demi menjaga daya saing dan keberlanjutan pelabuhan Indonesia di masa depan.

Kata Kunci: *Konsesi pelabuhan, model pelabuhan tuan tanah, kinerja pelabuhan, tata kelola pelabuhan, tinjauan literatur sistematis.*

Tersedia pada: <https://doi.org/10.62391/ejmi.v8i1.227>

Disubmit pada 18/12/2025	Direview pada 01/05/2026	Direvisi pada 08/05/2026
Diterima pada 20/05/2026	Diterbitkan pada 01/06/2026	

INTRODUCTION

Ports play a strategic role in supporting national economic growth, logistics connectivity, international trade, and maritime transportation [1]. As the world's largest archipelagic state, Indonesia relies heavily on efficient port systems to facilitate the seamless movement of goods and passengers across its vast network of islands. Consequently, port performance exerts a direct influence on logistics costs, supply chain reliability, and overall national competitiveness [2]. Historically, Indonesian ports were governed through a centralized structure dominated by state-owned enterprises. However, a pivotal institutional reform was introduced with the enactment of Law No. 17 of 2008 concerning Shipping, further operationalized by Government Regulation No. 61 of 2009, Government Regulation No. 64 of 2015, and prevailing Minister of Transportation regulations concerning port concessions [3]. This legislative framework mandated the separation of regulatory and operational functions, designating port authorities to oversee regulation and supervision, while delegating operational activities to Port Business Entities (*Badan Usaha Pelabuhan* or BUP).

Conceptually, a port concession refers to a contractual arrangement through which a government authority grants operational rights to a private or state-owned operator for the development and management of port facilities over a specified period [4]. Under these agreements, operators are generally responsible for financing, constructing, operating, and maintaining port infrastructure while strictly complying with performance obligations established by the regulator. Internationally, concession schemes are closely associated with the landlord port model—where public authorities retain ownership of land and strategic assets while private operators manage commercial activities. This paradigm is widely recognized for promoting operational efficiency, healthy competition, and robust investment mobilization [5]. In the Indonesian context, this scheme was strategically implemented to stimulate private sector investment and mitigate the financial burden on the national budget for maritime infrastructure development.

Despite these progressive reforms, substantial questions remain regarding the empirical effectiveness of concession schemes in elevating the performance of Port Business Entities in Indonesia. To accurately assess this effectiveness, port performance is commonly evaluated

using operational, financial, service quality, and infrastructure indicators [6]. Previous studies indicate that metrics such as vessel turnaround time, berth occupancy ratio, cargo throughput, equipment utilization, logistics costs, customer satisfaction, and investment realization represent the most frequently utilized performance indicators. Rigorous performance evaluation has become increasingly critical because concession agreements intrinsically include specific operational targets and stringent service standards that operators must achieve [7]. However, systemic challenges persist in achieving these targets, including ambiguous concession durations, complexities in asset ownership, rigid tariff structures, investment uncertainties, and overlapping institutional coordination between port authorities and operators [8].

Addressed against this backdrop, this study aims to systematically synthesize existing literature regarding the influence of concession schemes on the performance of Port Business Entities in Indonesia. By consolidating empirical findings, this research focuses on identifying the underlying benefits, persistent challenges, and broader performance implications of concession arrangements within the Indonesian maritime sector. Ultimately, this synthesis is expected to provide comprehensive insights for policymakers and stakeholders to optimize port governance and enhance global competitiveness.

METHODOLOGY

Research Design and Framework

This study employed a Systematic Literature Review (SLR) approach [9] to synthesize existing knowledge regarding the influence of port concession schemes on the performance of Port Business Entities (Badan Usaha Pelabuhan or BUP) in Indonesia. The SLR method provides a structured and transparent process for identifying, evaluating, and integrating findings from previous studies. To ensure rigor, the review adhered to the principles of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework [10]. Applying PRISMA ensured that the literature selection process was transparent, replicable, and objective, thereby minimizing selection bias and enhancing the reliability of the synthesized findings.

Search Strategy and Data Sources

Literature searches were conducted across major scientific databases, including Scopus, ScienceDirect, SpringerLink, Wiley Online Library, Google Scholar, and various accredited Indonesian journals. These platforms were selected for their extensive coverage of maritime economics, port management, logistics, infrastructure governance, and public-private partnerships. The search extended beyond academic journals to include government regulations, policy documents, institutional reports, and conference proceedings relevant to port governance reforms in Indonesia.

The search process utilized a combination of keywords and Boolean operators (AND, OR) to capture relevant studies. The primary keywords included: port concession, port business entity, port governance, landlord port, port efficiency, port privatization, public-private partnership, port performance, and Indonesia. The search period focused on publications issued between 2008 and 2025. The baseline year of 2008 was selected as it marks the enactment of Law No. 17 of 2008 concerning Shipping [11], which fundamentally transformed Indonesian

port governance by introducing the landlord port model and concession-based operational arrangements.

Selection Criteria and Screening Process

Following the initial identification, all retrieved documents underwent a rigorous screening process. Duplicate records were removed prior to a preliminary review of titles and abstracts. Studies focusing exclusively on technical port engineering issues, maritime transportation operations without governance implications, or concession systems in non-port sectors were excluded.

The remaining studies were subjected to a full-text review based on strict inclusion criteria. Publications were required to explicitly discuss port concession arrangements or port governance reforms, concession agreements and public-private participation in port operations, or the relationship between concession implementation and port performance indicators. Additionally, studies needed to provide conceptual, legal, policy-oriented, or empirical discussions relevant to Indonesian ports, or international experiences with direct implications for Indonesia. Publications lacking methodological transparency or meaningful insights into concession performance were excluded.

Data Analysis and Synthesis

The selected literature was analyzed using a qualitative content analysis approach [12]. Each publication was systematically reviewed to identify major themes, research findings, methodological approaches, performance indicators, governance issues, and policy implications. The extracted information was categorized into thematic areas, including concession governance, infrastructure investment, operational efficiency, service quality improvement, regulatory challenges, institutional coordination, and performance measurement.

Furthermore, a descriptive bibliometric analysis was conducted [13] to identify dominant research themes and emerging trends. Keyword frequencies, thematic relationships, and publication trends were examined to map the evolution of research concerning port concession schemes. Integrating bibliometric analysis with thematic synthesis enabled a comprehensive understanding of how concession arrangements influence BUP performance in Indonesia and helped identify future research opportunities.

Table 1. PRISMA literature selection process.

Stage	Number of Documents
Initial identification	221
Duplicate records removed	37
Records remaining after duplication removal	184
Records screened by title and abstract	184
Records excluded	112
Full-text articles assessed for eligibility	72
Full-text articles excluded	14
Final studies included in the review	58

Summary of Literature Selection

The literature selection process resulted in an initial identification of 221 documents. Following the removal of duplicate records and abstract screening, the pool was narrowed down. Full-text evaluation of 72 studies ultimately resulted in 58 studies selected for detailed analysis and synthesis. The progression of the screening, eligibility assessment, and final inclusion stages is summarized in Table 1.

RESULTS AND DISCUSSION

Research Trends on Port Concessions in Indonesia

The literature demonstrates increasing academic interest in port concession policies following the implementation of institutional reforms in the Indonesian maritime sector [14]. Research publications increased significantly after 2015, coinciding with government efforts to accelerate maritime infrastructure development and attract private investment [15]. Most studies focus on legal frameworks, governance reforms, concession implementation challenges, and the relationship between concession arrangements and operational performance. More recent studies increasingly address sustainability, digitalization, and performance-based governance models [16].

Bibliometric Analysis and Keyword Mapping

Bibliometric analysis identified several dominant research themes [17]. Three primary thematic clusters emerged from the literature [18]. The first cluster focuses on concession governance and regulatory frameworks. The second cluster addresses operational performance and efficiency. The third cluster concerns investment realization and infrastructure development.

Table 2. Dominant keywords in reviewed literature.

Keyword	Frequency
Port Concession	48
Port Governance	43
Port Performance	40
Investment	36
Port Authority	33
Landlord Port	29
Efficiency	28
Public-Private Partnership	26
Regulation	24
Infrastructure Development	22

Evolution of Port Concession Policies in Indonesia

The transformation of Indonesia's port governance system began with the implementation of Law No. 17 of 2008 concerning Shipping [19]. Prior to this reform, Pelindo corporations functioned simultaneously as regulators and operators. The introduction of concession schemes aimed to separate these functions and create a more competitive environment [20].

Table 3. Development of port governance models in Indonesia.

Period	Governance Model	Characteristics
Before 2008	Service Port	Pelindo as regulator and operator
2008–2015	Transition Period	Regulatory separation initiated
2015–2020	Landlord Port Implementation	Concession agreements expanded
2020–Present	Performance-Based Governance	Increased private participation

The transition toward a landlord port model was intended to improve efficiency, encourage competition, and accelerate infrastructure investment. However, implementation has faced legal and institutional challenges [21]. The literature indicates that concession schemes generally contribute positively to Port Business Entity performance. One of the most significant impacts is increased infrastructure investment [22]. Since government fiscal resources are limited, concession arrangements enable operators to mobilize private capital for terminal development, equipment procurement, and facility modernization. Studies show that concession policies have accelerated port expansion projects and increased operational capacity [23].

Operational efficiency also improves under concession arrangements because operators possess stronger incentives to optimize resource utilization and reduce operational costs [24]. Several studies report improvements in cargo handling productivity, berth utilization, and service responsiveness after concession implementation. Furthermore, concession schemes contribute to improved service quality through technological adoption, digitalization initiatives, and enhanced customer-oriented operations [25]. Modern port operators increasingly implement automation systems, performance monitoring technologies, and integrated logistics platforms.

Table 4. Literature synthesis matrix.

Author	Research Focus	Main Findings
Saleh (2021) [29]	Port concession mechanism	Concession implementation remains limited due to regulatory constraints
Santoso et al. (2025) [30]	Concession policy effectiveness	Concessions accelerate port development and investment
Halid et al. (2021) [31]	Pelindo IV concession agreement	Legal and institutional adjustments remain necessary
Aqmarina & Achjar (2017) [32]	Port performance determinants	Infrastructure and governance influence performance significantly
Hardianto et al. (2023) [33]	Port performance indicators	Efficiency and service quality dominate performance measurement
Suryam et al. (2024) [34]	Asset transfer obligations	Asset ownership remains a major concession issue
Karubaba et al. (2025) [35]	Sorong Port concession implementation	Concession improves governance but requires stronger oversight

Despite the positive impacts, the literature identifies several persistent challenges. One major issue concerns concession duration and investment recovery periods [26]. Operators often argue that concession periods must be sufficiently long to ensure financial feasibility and investment returns. Regulatory uncertainty regarding concession extensions may discourage long-term investment. Asset ownership and transfer mechanisms also remain controversial

[27]. Several studies highlight disputes regarding asset transfer obligations at the end of concession periods, particularly for ports operated by Pelindo entities before regulatory reforms. Institutional coordination represents another challenge; overlapping authority among port authorities, KSOP offices, local governments, and operators may create bureaucratic inefficiencies that reduce concession effectiveness [28].

The synthesis suggests that concession schemes tend to improve performance when accompanied by clear governance structures, transparent regulations, and measurable performance indicators [36]. The literature review reveals several important research gaps. Most Indonesian studies focus on legal and regulatory aspects of concession agreements rather than quantitatively evaluating their impact on operational and financial performance. Furthermore, few studies compare concession-based ports with non-concession ports using standardized performance indicators.

Another significant gap concerns the limited use of advanced analytical approaches such as Data Envelopment Analysis (DEA), Structural Equation Modeling (SEM), and machine learning techniques to evaluate concession effectiveness [37]. Future research should also examine sustainability indicators, digital transformation, and environmental performance within concession frameworks.

CONCLUSIONS

This Systematic Literature Review demonstrates that concession schemes have become a central component of Indonesia's port governance reforms. The transition from a service port model toward a landlord port model has encouraged greater participation by Port Business Entities in port development and operations. The literature indicates that concession schemes generally contribute positively to port performance through increased investment, infrastructure modernization, operational efficiency, and service quality improvements. However, concession effectiveness is influenced by several institutional factors, including regulatory consistency, concession duration, asset ownership arrangements, and governance quality.

The findings further suggest that performance-based concession frameworks accompanied by transparent monitoring systems can improve accountability and operational outcomes. For future policy development, strengthening regulatory certainty, clarifying asset-transfer mechanisms, and integrating digital performance monitoring systems are essential to maximize the benefits of port concessions in Indonesia.

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